Reminder of important clinical lesson

Buttock pain: a missed diagnosis

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Summary

A 13-year-old school boy presented with right-sided buttock pain, features of sepsis and *Staphylococcus aureus* positive blood cultures. On examination, he was febrile and in severe pain, with limited hip rotation and positive sacroiliac stress tests. Initial imaging with pelvic x-ray, hip ultrasound and MRI were normal. Despite this, a diagnosis of septic arthritis of the hip was presumed, and the patient underwent a washout of the right hip. When the imaging was reviewed in more detail, it was noted that a section of the sacroiliac joint was abnormal. Subsequent pelvic MRI confirmed that this was, in fact, septic sacroiliitis. The patient made a good recovery following washout of the right sacroiliac joint and 6 weeks of antibiotics.

BACKGROUND

Pyogenic sacroiliitis is relatively uncommon and accounts for 1–4% of all cases of septic arthritis.¹ Diagnosis is difficult and frequently delayed due to the rarity of the disorder in children, the wide variation in clinical presentation, low clinical suspicion of the examining physician and rare diagnostic imaging features.²

Why is it missed?

Buttock pain is often assumed to arise from the hip joint, as this case demonstrates. Clinical examination should include FABER's test (flexion, abduction and external rotation) or the pelvic stress test. There may also be global restriction in spinal movements. MRI imaging of the low spine to proximal femur should be carried out, as radiographs of the pelvis and sacroiliac joints are often normal upon presentation.²

Why does this matter?

A delay in diagnosis can result in complications such as abscess formation, disseminated infection, late arthritis, chronic debilitation and unsuccessful conservative treatment.² Early diagnosis ensures prompt treatment, relieves symptoms quickly and reduces morbidity.³

CASE PRESENTATION

A 13-year-old school boy presented with a 1 week history of acute onset right-sided calf pain, progressing up the posterior aspect of his leg into his buttock. He was febrile throughout admission and was unable to mobilise due to pain. There was no history of trauma or other joint involvement. There was no history of skin rashes, bowel disturbance or painful eyes, and there had been no foreign travel.

His medical history included a supracondylar fracture in 1996 treated with a pin that had been removed subsequently.

Family history included rheumatoid arthritis in his paternal grandfather. On examination, he was in extreme pain and unable to weight bear. He had labile temperatures

(38–39 degrees). There was no evidence of a rash. Rotation of the hip was limited due to the pain. Sacroiliac joint compression stress test was positive. There were a few excoriation marks around the inner buttock region of undetermined cause. Cardiorespiratory and abdominal examinations were normal.

He was noted to have high C reactive protein (CRP) of 151, but a normal white cell count of 6. His chest x-ray was clear. Antistreptolysin O titre, rheumatoid factor and antinuclear antibody were negative. Blood cultures grew *Staphylococcus aureus* in both bottles, sensitive to flucloxacillin.

He was assumed to have a septic right hip and an ultrasound scan was requested in the first instance. This was normal, and so he had an MRI of his hip, which was also normal. Despite this, he underwent a washout of the hip joint. The fluid obtained from this was sterile.

When the MRI hip images were reviewed more closely, it was noted that a section of the sacroiliac joint (SIJ) was abnormal, and he subsequently had a pelvic MRI. This demonstrated fluid in the SIJ joint and a small collection arising from its anterior aspect (figures 1 and 2).

Figure 1 (Axial) The MRI STIR views of the sacroiliac joints.

Figure 2 (Coronal) Presence of fluid in the right sacroiliac joint, with a small 2 cm by 8 mm collection arising from the anterior aspect of the joint. The appearances would be in keeping with sacroiliitis.

The right SIJ was then washed out, the fluid from which was also sterile. Following this procedure, his pain was much improved and he felt better.

He was treated with 2 weeks of intravenous flucloxacillin and fusidic acid, and then oral flucloxacillin for another 4 weeks.

He made a good recovery, being able to weight bear before discharge. His inflammatory markers settled, and CRP was 7 on discharge.

INVESTIGATIONS

Radiographs and ultrasound are usually not informative during the early stages of septic sacroiliitis. Bone scan is helpful if skeletal infection is suspected and symptoms are poorly localising. CT can be used, however early abscess and inflammatory masses that are isodense or lack ring enhancement may be easily missed. Bone changes can also be difficult to detect on CT during early disease.⁴

MRI is the best modality for identifying sacroiliitis, as it can detect effusions in the sacroiliac joint and bone marrow oedema of the sacrum and ilium. Fat-suppressed T2-weighted images and STIR (short TI inversion recovery) views are highly sensitive in the detection of fluid or oedema, which appears bright.^{2 4} Tracking of fluid posterior to the iliopsoas muscle is considered specific for septic sacroiliitis.⁴

Urgent washout of the correct joint is crucial to confirm the causative organism, even if blood cultures and conventional radiography are normal.^{1 3}

DIFFERENTIAL DIAGNOSIS

Sacroiliitis refers to disease of the sacroiliac joint, which may be inflammatory or degenerative in origin. The differential diagnoses for inflammatory sacroiliitis include: ankylosing spondylitis, reactive arthritis, psoriatic arthritis, enteropathic arthritis, juvenile spondyloarthropathy and undifferentiated spondyloarthropathy. Degenerative sacroiliac pain is rarely the cause of significant symptoms, and is often an incidental finding.⁵

Due to the proximity of the lumbosacral trunk, superior gluteal nerve and obturator nerve to the sacroiliac joint, there are potentially many mimics of sacroiliac disease. These include: arthritis of the hip, lumbar disc herniation,

discitis, pelvic abscess, visceral pain, strain injuries and the acute abdomen.²

TREATMENT

Antibiotic treatment according to the organism, should be intravenous for at least 2 weeks, and then oral for a further 2 weeks, with initial bed rest and limited weight-bearing on the affected side for the first few weeks. Surgical drainage and debridement are indicated if clinical symptoms and inflammatory markers show no improvement, and abscess formation persists.²

OUTCOME AND FOLLOW-UP

This young boy made a full recovery after 4 months and inflammatory markers settled. Repeat MRI of the pelvis showed resolution of the fluid collection in the right SIJ. It is possible for abnormal bone marrow changes to persist for 2–3 months after treatment.²

DISCUSSION

Septic sacroiliitis is an infection of the sacroiliac joint, and is frequently misdiagnosed.² It is thought to occur through haematogenous spread, or less commonly by local extension of adjacent soft tissue or bone infection.² Patients typically present with severe, and often debilitating, unilateral sacroiliac, buttock or lower back pain, sciatica, fever and features of sepsis. Predisposing factors include trauma, immunocompromise, rheumatoid arthritis, intravenous drug abuse, co-existent infection and pregnancy.¹ The most common causative organism is *Staphylococcus aureus*, but other organisms include *Salmonella*, *Streptococcus* and *Brucella*, *Mycobacterium tuberculosis* and *Pseudomonas*.^{6 7}

Learning points

- ▶ Septic sacroiliitis is rare, difficult to diagnose and therefore frequently missed.
- ▶ It is an important differential diagnosis of unilateral buttock pain, so careful examination of the sacroiliac joint is essential.
- ▶ MRI pelvis with STIR views is very sensitive, and the imaging modality of choice.
- ▶ Treatment involves 6 weeks of antibiotics, with initial bed-rest.

Competing interests None.

Patient consent Obtained.

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